

## A REVISED SYNOPSIS OF THE PINES 3: THE PARASOL PINE (*PINUS*, SECTION *PINEA*)

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### ABSTRACT

Section *Pinea*, here emended, comprises the sole species *Pinus pinea* whose reproductive characters and behavior differ importantly from those of other sections by the combination of 4 "actions:" 1) the species spends 2 years and one quarter to grow and mature its cones; 2) the short, truncate seed wings stay stuck to the cone scales; 3) the tree crown adopts a wide parasol shape to better dissemination; 4) its geographic distribution is very maritime.

KEY WORDS: *Pinus*, Pinaceae, systematics.

### INTRODUCTION

This treatment of *Pinus pinea* is in line with the one which I published in 1974 (p. 774) wherein I had given paramount importance to the three growth seasons totaling two years and three months, required by *Pinus pinea* Linné and *Pinus leiophylla* Schl. & Cham. to develop their seeds.

Within a plant genus - any plant genus - what species other than these two pines grow their fruits in two years and a quarter (2 1/4 years) over a succession of three growth seasons (stadia)? By the expression "three growth stadia," I mean this: Year 1: strobile to small conelet; Year 2: small conelet to bigger conelet; Year 3: bigger conelet to fully grown cone. I have tried without success to find some. I could find some *Juniperus* (e.g. *Juniperus scopulorum*) with fully grown fruits in one season, but taking up to two more growth seasons to ripen. I also noticed that *Alnus maritima* showed a belatedness of less than one year. But that was all.

Can someone provide me with more information? Some authors erroneously reported that *Cedrus* matures its fruits in the second or third year. In fact, they all do it in the second year.

I can assume that the two pines mentioned above experienced some sort of genetic transformation as an efficiency measure. But, what was that measure?

I feel baffled, and marvel at these facts. A sagacious person once said: "Could human intelligence foresee such tree species, if they did not exist?"

Such an astounding time behavior produces the following morphological traits: on the branchlets we notice two sets of conelets, the standard one-summer conelets, and the "odd-ball" two-summer conelets whose little scales have an umbo. Then the cones themselves develop during the third summer, showing a peculiar double, ring-like umbo.

That time behavior seems as notable as the mysteriously refined vegetative sequence of the pine seedlings which, out of the plantule stadium with its cotyledons, grow "green needles on the long shoots, but later these bear only brown scale leaves, producing in the same year axillary short shoots, the contracted axes of which first bear a few membranaceous bracts (the leaf sheaths) and then a definite number (characteristic of the species) of green needles." (after Firbas 1965, p. 609).

We can see, by observing those two phenomena, that the genus *Pinus* is indeed most advanced.

Accordingly, in 1974 (p. 774) I had proposed that *Pinus pinea* and *P. leiophylla* should be classified much apart, namely in a separate subgenus, subgenus *Pinea*, whose full name and emended description were given and are copied as follows: (English translation while keeping the Latin words):

"Subgenus *Pinea* (Endlicher) stat. nov., Basionym: *Pinus* section *Pinea* Endlicher - Synopsis Coniferarum p. 182 (1847), pro parte typica. Holotype - *Pinus pinea* Linné. Descriptio nova - Strobili triennes; umbo dorsalis duplex, concentrica; pseudophylli sicut subgenus *Pinus*.

That subgenus comprises essentially the pine species whose cones mature in three growth seasons—it is constituted by two monospecific sections.

#### SECTION *PINEA* EMEND.

The golden rule of dendrology is: when you have the choice between complication and simplification choose the latter. In accordance, I diagnose section *Pinea* by only two essential characters: double ring-like umbos and seeds with a very short ineffective (here caducous) wing. That is analogous to what I had done with sections *Quinquefoliis* and *Cembra*.

The epithet of this section was first published by Endlicher (1847, p. 182) who included various species: *Pinus pinea* (type), *P. cembroides*, etc., which matched his description: 1) pyramidal apophyses, 2) dorsal umbos 3) wingless seeds, 4) leaves 2-fascicled or rarely 3-fascicled.

My emended, more complete description is more restrictive, since it concerns only *Pinus pinea* Linné (monotype): Strobiles maloides, umbone dorsali et duplex, semina grandia (15-20 mm), ala brevi truncata et separabili. Folia 2. Arbores parasoles, maritimissimi.

-Apple-like cones with dorsal, double umbos. Seeds long (15-20 mm) with a truncate, short, deciduous wing. Leaves 2 in a fascicle. Parasol-shaped trees when older. Very maritime species.

-Cônes en forme de pomme, à ombilic dorsal double. Graines longues (15-20 mm), à aile tronquée, courte, caduque. Aiguilles groupées par 2. Les arbres plus vieux se forment en parasol. Espèce très maritime.

I do not include *Pinus leiophylla* in section *Pineae* because there are six main features that separate it from *Pinus pinea*:

1. Though both species have double umbos, those of *Pinus pinea* are totally devoid of prickles.

2. The apple-like cones of *Pinus pinea* are, in France, called popularly *pommes de pin*, meaning pine apples. The cones of *Pinus leiophylla* are more conic.

3. The seeds of *Pinus pinea* have truncate at slanted angle, short, ineffective wings that stay stuck to the inner wall of the scale, thus leaving bare the seed when it is liberated.

4. Concerning the crown of the older trees, we cite Mitchell (1972, p. 233): "Very distinctly wide-domed on few stout branches ascending steeply from low on a short sinuous bole then dividing into radiating and ascending small branches to make a dense head" (Figure 1).

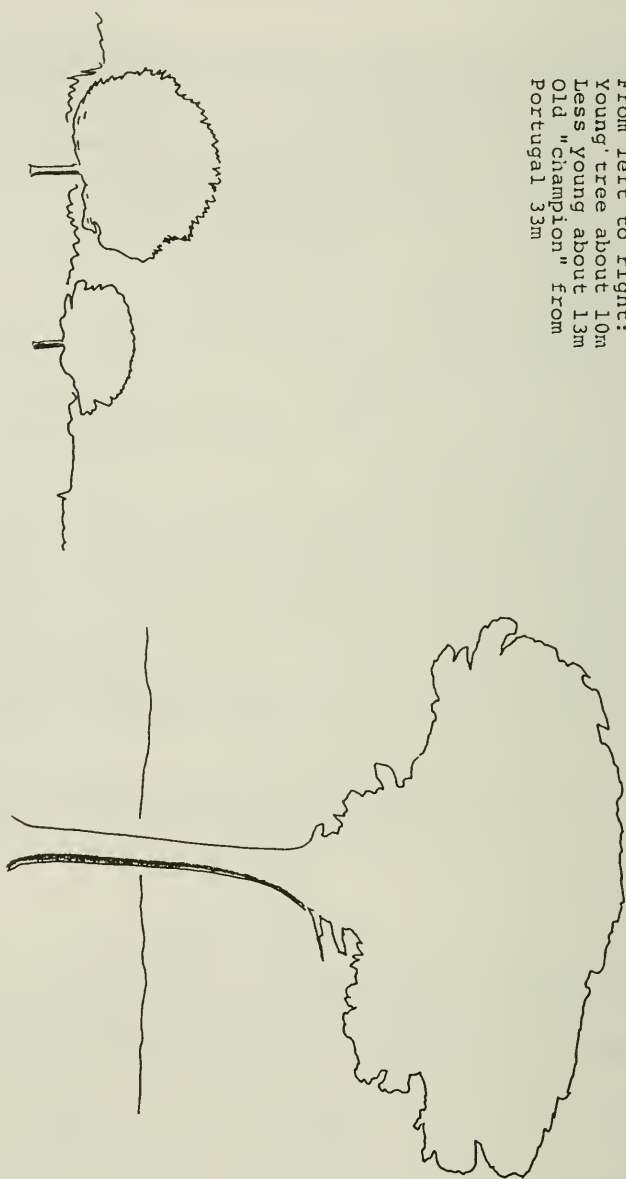
That shape originates from the relatively large size of the sub-terminal buds surrounding the terminal one, permitting an important lateral development of the crown at the expense of the height growth. Loudon (1838, p. 2225) had already described: "The surrounding buds are nearly as large as the central one."

5. The best-at-home specimens of *Pinus pinea* will be found in Spain and Portugal, where maritime influence is greater due to the proximity of the Atlantic Ocean. By looking at the map in Critchfield & Little (1966, p. 57) we notice that that pine is very maritime while *Pinus leiophylla* is neatly continental.

#### SUBSECTION *PINEAE*

Name by Little & Critchfield (1969, p. 12) whose choice to set apart the sole *Pinus pinea* was based on a combination of "leaves 2 in a fascicle, with persistent sheath; seeds large (15-18 mm) with short detachable wing."

Outline of 3 Parasol Pines  
From left to right:  
Young tree about 10m  
Less young about 13m  
Old "champion" from  
Portugal 33m



After Becker et al. 1982, p. 256 (left group), and Elwes & Henry 1911, pl. 291

## RECOGNITION

Alan F. Mitchell's book (1972), entitled *Conifers in the British Isles* - for me is a prized reference due to precise descriptions made from living trees. The accurate drawings by Cristine Darter well complement them. Books describing pines with accuracy are far from common.

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